AUTHOR 1 ———————————— □

AUTHOR 2 ———————————— □

AUTHOR 3 ———————————— □

AUTHOR 4 ———————————— □

Worksheet 17

1. The graph of $f(x)$ is below.
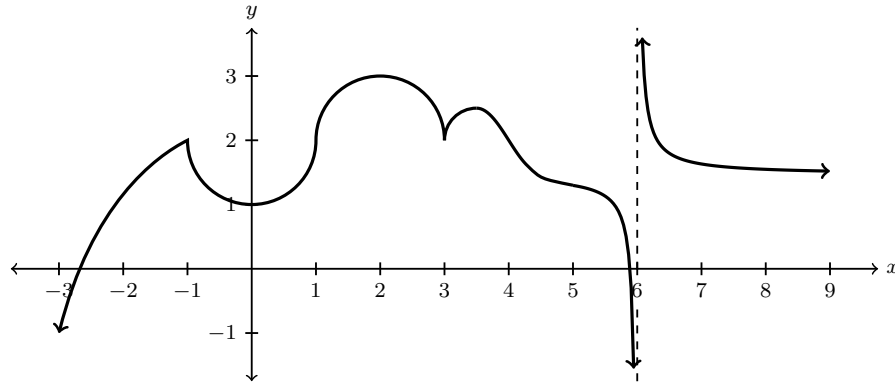
(a) On what intervals is f increasing?

(b) On what intervals is f decreasing?

(c) For which x-values is there a local extrema?

(d) On what intervals is f concave up?

(e) On what intervals is f concave down?

(f) For which x-values is there an inflection point?

2. Draw the graph of a function f that has the given properties:

- f is continuous everywhere except at $x = 4$

- $f'(x) < 0$ **only** when $3 < x < 4$,

- $f''(x) > 0$ **only** when $0 < x < 2$

- $\lim\limits_{x \to \infty} f(x) = 1$
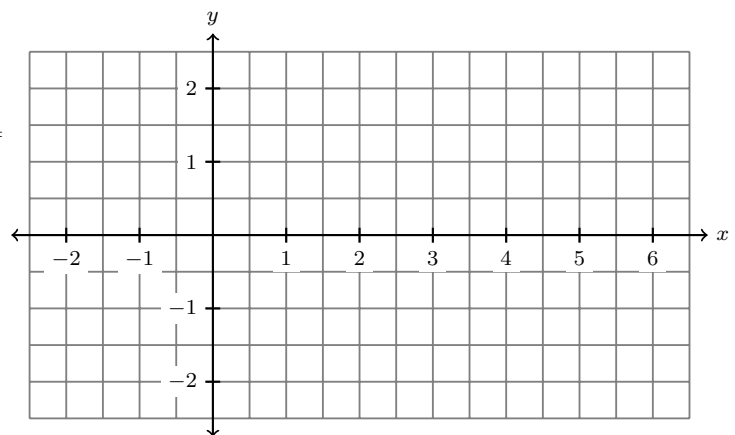
(a) For which x-values is there a local extrema?

(b) For which x-values is there an inflection point?

3. Let $f(x) = x^4 e^{-x}$. Find all intervals of increasing or decreasing, all intervals where the graph is concave up or concave down, all local extrema, and all inflections points. (Your answers go below.) *Also, use this information to sketch the graph of $y = f(x)$.*

- On what intervals is f increasing?

- On what intervals is f decreasing?

- For which x-values is there a local extrema?

- On what intervals is f concave up?

- On what intervals is f concave down?

- For which x-values is there an inflection point?